

meet the

MECHLINS



A SPECIAL STUDY FOR BOTH
BUYERS AND USERS OF WRENCHES

BLACKHAWK MFG. COMPANY • MILWAUKEE, WISCONSIN

HERE'S THE

HALF in Fun—ALL IN EARNEST!

True, isn't it, that we sometimes have headaches and troubles so commonplace we just plain "put up" with them — never thinking that they can be licked? Well, this little book aims to cure a headache, or two, and hopes to give you a chuckle at the same time. » » » And, when you've finished reading this booklet—pass it on to your associates—the foremen, superintendents, engineers, mechanics, maintenance men and others who are almost sure to have "Mechlin trouble". It is certain to save time, money and materials for most of its readers.

I D E A

CURRENT NEWS REPORTS

apply a fun-making name to some mighty serious troubles that have bothered production, assembly and maintenance men right along. » » » These reports say that army ground crews are cursing the MECHLINS — who are, of course, second cousins of the well-publicized Gremlins. *Mechlins are trouble makers for men who handle wrenches.* Blackhawk identifies these Mechlins for you and suggests how they can be exterminated. » » » Now, meet the Mechlins — then, *beat them* at their game.

BLACKHAWK MFG. CO., MILWAUKEE, WIS.

MECHLIN NO. 1 **JUNKY**



This is the General Manager of all Mechlins and an "all star" at slowing up production, maintenance and service. He spreads germs of "Neophobia"—the tendency to do things the same old way. "Junky," for example, is the reason why some work-superintendents (who carefully lay out an entire job scientifically), completely forget to select the proper wrench for the assembly job.

"USE ANY OLD WRENCH"

is a statement provoked all too often by Mechlin No. 1. He's especially gleeful when that's the story on a continuous assembly job. Left to his own devices, the workman naturally is going to use the best wrench he has. But most frequently that means reaching for a big-jawed "adjustable" or some sort of alleged all-purpose tool that somehow gets by but isn't the natural for the job at hand.



HERE'S HOW TO BEAT "JUNKY" AT HIS GAME



Like most everything else—wrenches had to go and get better during the last 10 years. Interchangeable Socket Wrenches—which build up into perfect combinations especially selected for each job—are the development that spell poison to "Junky." And double-poison to "Junky" has been Blackhawk, creator of most major improvements in Socket Wrenches. The answer, then, is to study each job and try to adapt a *modern* Socket Wrench combination—for speed, ease and safety's sake.

MECHLIN NO. 2 **MEANY**

Here is the "First Vice President in Charge of Nut Torture." While other Mechlins specialize in slowing up the job and making the workman uncomfortable—"Meany" goes in for burring nuts. He will frequently crown his success by skinning a knuckle and promoting murder of the "King's English." His greatest weapon is a wrench of a type and size that doesn't closely fit the nut.



EVEN A NUT LIKES TO BE HANDLED with *Care*

RIGHT—A HAPPY NUT

This is an overhead, cut-away view of a cleanly-broached Blackhawk Socket firmly caressing the sides of a nut. No chance for burring, slipping or knuckle skinning. Socket and nut were literally "made for each other."



LEFT—BIRDS-EYE VIEW OF A NUT CATCHING HELL....

This happens when a rigid wrench (not quite the nut-size but close enough for a try) gets in its dirty work. Sharply-chiselled nut corners will be rounded out like Mae West curves. The guy who swings the wrench in many cases winds up by wearing adhesive tape on a bruised hand.

Sockets are the logical choice to eliminate nut-wear and other damage—because, from the wide range of Blackhawk Sockets—you can match socket-size with nut-size to the last practical googoloth. Blackhawk has the practical range of sizes and types of sockets, especially designed for square or hex nuts, as shown at the right. (Hot broaching makes interiors of Blackhawk Sockets especially clean and close-fitting. No burrs or chips to slow up mounting on the nut or to promote nut-wear.)



MECHLIN NO. 3 **SPECIALITUS**

This fellow is in charge of DPBSW (Dept. for Promoting the Building of Special Wrenches). "Specialitus" is happy when he can incite a mania for making special tools for every odd job, whether necessary or not. The loss of time in designing and building the "special"—while the real work stands still—is unmeasured but costly.



These two engineers (above), at work dreaming up a humdinger of a special wrench, might possibly conserve valuable time by following the suggestion below.



Here's an Example of How to Lick "SPECIALITUS"

USING A COMBINATION OF STANDARD BLACKHAWK SOCKET WRENCHES

Handle bar (A) engages spring-backed ball for firm grip in hole at top of 10" extension (B). Universal joint (C) connects to 6" extension (D) which has revolving grip. Socket (E) is attached.

"Lock-on" feature clicks this typical combination into one solid tool!

THOUSANDS OF COMBINATIONS CAN BE BUILT FROM STANDARD SOCKETS, HANDLES AND ATTACHMENTS

There is rarely need to make "specials" when an assortment of standard Blackhawk Socket Wrenches is at hand. Simply choose the handle with the right leverage for the job—add whatever attachment and socket are necessary—and you have your "special" built from standards right on the spot! The picture at the left offers an example of such a combination built from five standard socket wrench units. "Lock-on" (see next page) makes Blackhawk Wrenches superior for this purpose because the combination becomes a solid tool that cannot be accidentally disengaged.

MECHLIN NO. 4 **POP-OFF**

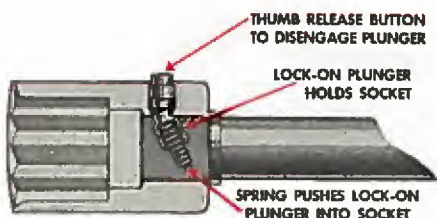
Here is the gent who specializes in sabotaging work schedules and mechanisms by causing sockets to drop off *ordinary* wrench handles. Nothing exasperates a man more than when he must hunt under his workbench, finger around in an oil pan, fumble in hot machinery, or tear down an assembly—*just to find a socket!* And, when such sockets pop-off overhead onto workmen below, it too often means a trip to the first-aid room for the victim.



"POP-OFF'S" ENEMY IS BLACKHAWK'S "LOCK-ON"



Blackhawk's exclusive patented Thumb-Release "Lock-On" prevents sockets from sticking in tight places, or dropping off accidentally. *Thumb-Release "Lock-On" should not be confused with ordinary friction-ball grips or set screw devices.*



When a Blackhawk Socket is engaged with the handle, the combination says "click" and stays that way—until the user presses the "Thumb-Release" button and pulls the combination apart. The diagram shows how a built-in, fool-proof device does this trick—and the picture (left) shows how simple it is to disengage combinations by merely pressing the "Thumb-Release" button on the Blackhawk Extension, Attachment or Socket (If special circumstances do not require "Lock-On"—the socket can simply be assembled so that the "Lock-On" plunger does not engage in the socket wall). Pat. Nos. Reg. 19287 and 1927844.

AVIATION has been especially quick to recognize the importance of "Lock-On." When using ordinary wrenches, it frequently happens that a mechanic will "pull away" from a job with the wrench handle in his grasp but with the socket left sticking on the nut. "Lock-On" prevents this and all the trouble and damage that such lost and "left behind" sockets can cause.

(Right)—A mechanic checks the engine on a North American B-25 Billy Mitchell bomber, using a Blackhawk Wrench.

Since the beginning of the war, Mitchell bombers have established many "firsts" in combat. Jimmy Doolittle used them to bomb Tokyo, a Mitchell was the first American bomber to sink an enemy submarine in the Atlantic, and they performed gallantly in the Battle of the Bismarck Sea, when 22 Jap transports and warships were sunk.

(Photo—Courtesy, North Amer. Aviation, Inc.)





MECHLINS NOS. 5 & 6 **RUFFY & KLUMZY, INC.**

These lads are partners in crime—their general purpose being to scuff up machinery and wear out the workman.



(Above) When obstructions prevent direct use of a straight wrench—a Blackhawk Universal Joint (or Universal Joint Socket) can be used for application at an angle with the socket.



Blackhawk Brace handles (sometimes called "speeders" or "spinners") are fast-action tools. These braces can be coupled with extensions (as above) to bring nut-spinning action to recessed spots. The brace can also be used with a universal joint for fast assembly work, enabling the operator to stand comfortably in any convenient position.



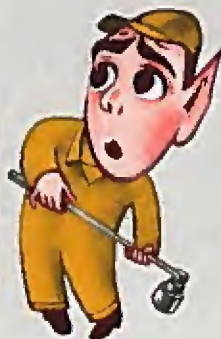
When using a ratchet—it's unnecessary to lift the socket off the nut to get another "bite." The advantages are apparent in the photo at the left, wherein the cramped, hard-to-reach quarters would make any other type of wrench awkward. Blackhawk Reversible Ratchets have design features that give maximum benefit of the ratchet principle to the user.

MECHLINS NOS. 7 & 8

GRUNT & RUNT



Here are the "Dead End" kids of the Mechlin family—so called because they work at opposite ends of their racker to deaden the efficiency of the worker. "Grunt" incites the use of a whopper wrench on a dinky job, while "Runt" specializes in trotting out midget tools where he-man stuff is needed.



The above photos illustrate the practical range of Blackhawk Socket Wrenches. The midget job is served by a midget ratchet and socket—and these midget wrenches are as precision-made as the heavy-duty ratchet and socket on the big job. Blackhawk's extra-heavy-duty series of socket wrenches is available for extra-big work.



The Blackhawk Wrench line includes socket sizes from $\frac{3}{16}$ " to over 3", with handles and attachments to correspond. No need to use a whopper wrench on a midget job—or vice versa!



MECHLIN NO. 9 **MISTER "X"**



This fellow has kept himself hidden for years. Yet, he has taken a steady toll under the cloak of mystery. It's just lately that Mister "X" has been smoked out by a development described on this page.

Mister "X" starts his job early in the morning—stimulating the wrench user to eat plenty of ham and eggs so that he will tighten the hell out of nut and bolt assemblies. Sometimes he varies the tactics—weakening the victim so that forthcoming nut-tightening is not tight enough *and never uniform*. Every workman—regardless of ability—is wide open for the onslaughts of this Mechlin.

HERE'S WHAT HAPPENS

Lack of uniform and proper tension on nut and bolt assemblies causes loss of compression, distortion and cracking of assemblies, blow-out of gaskets, thread stripping, bolt breakage, loss of fuel, power, liquids and gases; plus promoting a wide range of mechanical ills. The obvious answer on critical assemblies is to use *a wrench that measures the amount of pull or tension applied on each nut setting*.



The uses of Blackhawk Torque Indicators in industrial, aviation, marine, construction, railroad, refining and other fields are practically unlimited. But—the above simple diagram (showing damage done by uneven tightening of cylinder head studs and spark plugs) suggests the general necessity for uniform tension on a wide range of bolted assemblies.

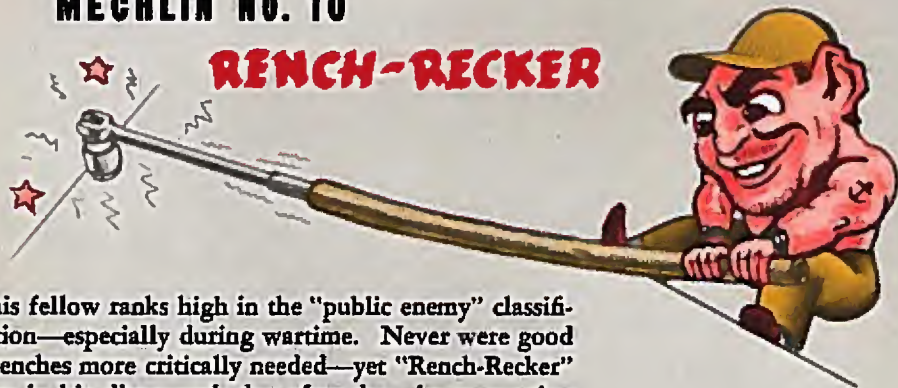
- (A) Leakage between valve head and valve seat.
- (B) Gasket material squeezed out—loss of compression.
- (C) Cracked spark plug insulator—shortened life.
- (D) Points of plug are spread—poor firing.
- (E) Cylinder walls distorted into oval shape, causing "blow-by," wear and cracking.

THIS TENSION WRENCH HAS A "COLLEGE DIPLOMA"

It's been said that the Blackhawk "Torkflash" is an "educated wrench"—because it tells the operator, VIA A FLASH OF LIGHT, when he should stop pulling—on the basis of a proper tension reading that has been *pre-set* for either inch-lbs., foot-lbs., or recommended tensions for SAE and USS bolts and spark plug sizes. Blackhawk Tension Wrenches are fool-proof, inexpensive and loaded with exclusive features. The picture shows "Torkflash" tightening cylinder hold-down nuts on a Pratt & Whitney aircraft engine at assembly.



RENCH-RECKER



This fellow ranks high in the "public enemy" classification—especially during wartime. Never were good wrenches more critically needed—yet "Rench-Recker" gets in his dirty work day after day—by promoting *improper use* and prolific abuse of tools.

HERE ARE SOME GOOD GENERAL RULES TO FOLLOW IN PRESERVING THE LIFE OF ALL HAND TOOLS

- 1** Use a hammer for hammering—do not use a wrench for a hammer. Do not hammer the wrench.
- 2** Use a pry bar when prying—do not use a screw driver or wrench for this purpose.
- 3** Use the right type of socket or right wrench for each job—do not grind down any wrench to fit—you thus weaken the tool.
- 4** Firmly seat the socket or wrench on the nut before applying pressure.
- 5** Use a big wrench to bust a balky nut—do not get the extra leverage by placing a pipe extension over a small tool.
- 6** Preserve the protective finish of all your tools—keep them clean, dry and free from acids and rust. Carry them—do not throw or slide them.
- 7** Keep your tools in proper order—for quick selection. Pride in owning good tools, plus care and neatness in their use, are earmarks of a good, efficient workman.

Wrenches are Weapons of War—
Make Their Life Count to
Shorten the Life of the Axis!



It's a dull fellow who "sharpens" a socket



Bust "balky" nuts with bigger tools—hammering ruins ratchets



"Something's bound to give" and it may be the tool



Seat sockets securely before using the muscle

You Can Beat THE MECHLINS!

This booklet has done its job if it has made you increasingly conscious of the fact that there are *avoidable* wrench difficulties! We've tried to tell the story without blowing our own horn too much. But pardon us if we suggest that there is a great deal more to be said about Blackhawk Wrenches and their *Mechlin-beating* exclusive features.

Your Blackhawk distributor has complete literature on these Wrenches — and also on Blackhawk Hydraulic Hand Jacks, Gauge Jacks, Wheeled Floor Jacks, Pipe Benders, Porto-Power Hydraulic Units and Maintenance Equipment. Or write to us at the following address:

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